Appendix C: Merced Wild and Scenic River Section 7 Determination

Introduction

Purpose of this Determination

The purpose of this determination is to evaluate the impact of the proposed Yosemite Valley Loop Road Project on the free-flowing condition and the Outstandingly Remarkable Values for which the Merced River was designated Wild and Scenic.

Authority

The authority for this determination is found in Section 7(a) of the Wild and Scenic Rivers Act (Public Law 90-542, as amended, 16 United States Code [USC] 271-1278). Section 7 states:

> *…no department or agency of the United States shall assist by loan, grant, license or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration.*

While the Wild and Scenic Rivers Act does not prohibit development along a river corridor, it does specify guidelines for the determination of appropriate actions within the bed and banks of a Wild and Scenic River. As the designated river manager for the Merced River segments located within the boundaries of Yosemite National Park and the El Portal Administrative Site, the National Park Service must carry out a Section 7 determination on all proposed water resources projects[1] to ensure they do not directly and adversely impact the free-flowing condition or the values for which the river was designated[2].

Wild and Scenic River Designation

In 1987, the United States Congress designated the Merced River a "Wild and Scenic River" to protect the river's free-flowing condition and to protect and enhance its unique values for the benefit and enjoyment of present and future generations (16 USC 1271). This designation gives the Merced River special protection under the Wild and Scenic Rivers Act.

The passage of Public Law 100-149 on November 2, 1987 and Public Law 102-432 on October 23, 1992, placed 122 miles of the main stem and South Fork of the Merced River, including the forks of Red Peak, Merced Peak, Triple Peak, and Lyell, into the Wild and Scenic River System. The National Park Service manages 81 miles of the Merced Wild and Scenic River, encompassing both the main stem and the South Fork in Yosemite National Park and the El Portal Administrative

[1] A water resources project is any dam, water conduit, powerhouse, transmission line, or other works project under the Federal Power Act, or other developments, that would affect the free-flowing character of a wild and scenic or congressionally authorized study river. In addition to projects licensed by the Federal Energy Regulatory Commission, water resources project may include: dams, water diversions, fisheries habitat and watershed restoration, bridges and other roadway construction/reconstruction projects, bank stabilization projects, channelization projects, levee construction, boat ramps, fishing piers, and activities that require a Section 404 permit from the U.S. Army Corps of Engineers (Interagency Wild and Scenic Rivers Coordinating Council 1999.)

[2] This description of the Wild and Scenic Rivers Act Section 7 determination process is adapted from a technical report by the Interagency Wild and Scenic Rivers Coordinating Council (Interagency Wild and Scenic Rivers Coordinating Council 1999.)

Site. The United States Forest Service and the Bureau of Land Management administer the remaining 41 miles of designated river.

Methodology

Wild and Scenic Rivers Act Section 7 Determination

The Section 7 evaluation for the Yosemite Valley Loop Road Project is based on guidance provided in the Wild and Scenic Rivers Act: Section 7 Technical Report, Appendix C, Evaluation Procedure under "Direct and Adverse" (Interagency Wild and Scenic Rivers Coordinating Council 1999.) The direct and adverse evaluation procedure is carried out for water resources projects licensed by the Federal Energy Regulatory Commission or other federally assisted water resources projects within the Wild and Scenic River boundary of the designated river. The Yosemite Valley Loop Road Project has elements that would improve the natural hydrologic flow along a portion of the road in the area immediately adjacent to the Pohono Bridge to minimize the potential for non-natural river bank erosion, provide bank stabilization and restoration to the eroded area, and match existing bank elevations with placement of stone. The project additionally proposes to repair approximately 150 feet of embankment immediately adjacent to the Valley View parking area along Northside Drive. This Section 7 determination process applies only to those elements of the proposed action, as they are the only ones that occur in the bed or bank of the Merced River.

Protection and Enhancement of Outstandingly Remarkable Values

Section 7 of the Wild and Scenic Rivers Act requires river managing agencies to determine whether water resources projects would adversely affect free flow or directly and adversely impact Outstandingly Remarkable Values. In addition, Section 10(a) of the act requires that rivers be administered to protect and enhance Outstandingly Remarkable Values. Outstandingly Remarkable Values are the river-related values that make the river segment unique and worthy of special protection. Uses that are consistent with this provision and that do not substantially interfere with public use and enjoyment and use of these values should not be limited (16 United States Code 1281[a]). Outstandingly Remarkable Values located outside the Wild and Scenic River corridor boundary must also be protected (NPS 2005b).

The Merced Wild and Scenic River segment applicable to the Yosemite Valley Loop Road Project is Segment 2, Main Stem including east and west Yosemite Valley. For the purposes of this analysis of potential effects on Outstandingly Remarkable Values, the proposed action is compared to the No Action Alternative (see Chapter II, Alternatives). The focus of the analysis is on long-term effects (i.e., effects that would last 10 years or more or would be permanent). Short-term effects are not addressed in this analysis unless they are of sufficient magnitude (having a substantial, highly noticeable influence) to warrant consideration.

Analysis of Outstandingly Remarkable Values is focused on segment-wide effects, rather than site-specific or localized effects. Exceptions to the segment-wide guideline include site-specific activities that could have substantial effects on Outstandingly Remarkable Values, such as degradation of habitat of a river-related special-status species (a biological Outstandingly Remarkable Value) that is endemic to that location. For the Yosemite Valley Loop Road Project,

Outstandingly Remarkable Values are evaluated based on effects to such values within the Yosemite Valley segment of the Merced Wild and Scenic River.

In terms of evaluating potential effects, actions that could degrade Outstandingly Remarkable Values on a segment-wide basis include actions with effects that would be discernible throughout the majority of the river segment, or would be of sufficient magnitude to affect adjacent segments.

For the purposes of this analysis under Section 7 and Section 10 of the act, the following assumptions for each Outstandingly Remarkable Value were made:

- Scientific: The analysis considers whether the proposed action would affect the integrity of the Merced Wild and Scenic River as a scientific resource, or would degrade the river's value for research (all segments).
- Scenic: The analysis considers the specific features that are listed in the scenic Outstandingly Remarkable Value for the Valley segments and potential effects to views from the river and other scenic features. This analysis also considers potential effects on the scenic interface of river, rock, meadow, and forest throughout the segment (Yosemite Valley segment).
- Geologic Processes/Conditions: The analysis gives primary consideration to designated processes and those processes (e.g., U-shaped valley, hanging valleys, evidence of glaciation, etc.) that have been responsible for creating the river's geologic landscape. Effects related to natural meandering of the Merced River are addressed in the hydrologic processes Outstandingly Remarkable Value (all segments).
- Recreation: The analysis considers whether opportunities to experience a spectrum of river-related recreational activities would be affected (Yosemite Valley segment).
- Biological: The analysis focuses on effects to riparian areas, wetlands, and other riverine areas that provide rich habitat for a diversity of river-related species (all segments).
- Cultural: The analysis considers effects to river-related cultural resources that are not intended to divert the free flow of the river and are either eligible for or listed on the National Register of Historic Places, including archeological sites, which provide evidence of thousands of years of human occupation, and current traditional use sites. The analysis also considers effects on nationally significant historic resources, such as designated landscapes and developed areas, historic buildings, and circulation systems (trails, roads, and bridges) that provide visitor access to sublime views of natural features that are culturally valuable (Yosemite Valley segment).
- Hydrologic Processes: Consideration is primarily given to designated processes, such as river meandering, world-renowned waterfalls, an active flood regime, oxbows, and fluvial processes. Effects on wetlands are addressed in the biological Outstandingly Remarkable Value (Yosemite Valley segment).

It is possible for Outstandingly Remarkable Values to be in conflict with each other, or for an action to have beneficial impacts with regard to one Outstandingly Remarkable Value and adverse impacts with regard to other Outstandingly Remarkable Values. The *Revised Merced River Plan* (2005b) recognizes this possibility and states:

> *Actions must protect all Outstandingly Remarkable Values, regardless of where they are located. When Outstandingly Remarkable Values lie within the boundary of the Wild and Scenic River, the value must be protected and enhanced. When values are in conflict with each other, the net effect to Outstandingly Remarkable Values must be beneficial.*

The Wild and Scenic Rivers Act stipulates that agencies are given discretion to manage a river system with "varying degrees of intensity for its protection and development, based on the special attributes of the area." For example, there may be conflicts between enhancing recreational values and biological values, as when recreational facilities are moved away from the riverbank to restore meadow areas.

Compatibility with Classifications

The Yosemite Valley Loop Road Project was assessed for its compatibility with the Merced Wild and Scenic River recreational classification for the East Valley area. The proposed action is not expected to change access to river resources or the level of development in this segment of the river. Therefore, the proposed project is compatible with the recreational classification.

Consistency with the River Protection Overlay

The Yosemite Valley Loop Road Project was assessed for its consistency with the River Protection Overlay prescriptions. The River Protection Overlay requires that nonessential facilities, including utilities, should not be located within the River Protection Overlay unless they (1) are required for access to or across the river, for health and safety, or for the maintenance of historic properties; and (2) where it is impractical to locate them outside of the River Protection Overlay. Given consistency with these criteria, the River Protection Overlay allows for repair and relocation of facilities within the area, and for development of new facilities within the area, that do not materially impair the natural function of the river, impede linkages to tributary inflow and backwater areas, or disrupt contribution of woody debris to the river, and where they do not have a direct and adverse impact on the Outstandingly Remarkable Values. The River Protection Overlay also requires actions within the bed and banks of the river to be designed to minimize impacts to the free-flowing condition of the river, interference with linkages to tributary inflow and backwater areas, and disruption of contribution of woody debris to the river and the project must incorporate mitigation measures to avoid or reduce impacts.

The Yosemite Valley Loop Road Project meets the prescriptions of the River Protection Overlay. Implementation of the Yosemite Valley Loop Road Project would result in:

- An improvement of roadside drainage
- The improvement of natural hydrologic processes due to the addition of new culverts and the resizing of others
- The installation of a permeable subgrade beneath the road at key locations to help improve the hydrologic connectivity, value, and function adjacent meadow wetland areas
- The removal and/or reduction in size of some paved and unpaved roadside parking at select locations in the RPO
- No expansion of existing parking areas would occur in the RPO, however some areas currently unpaved could become paved and curbed

Consistency with Management Zoning

The Yosemite Valley Loop Road traverses approximately 12.5 miles of the Valley floor, and the proposed action falls within a number of developed zones (Zone 3) and diverse visitor experience zones (Zone 2) as described in the *Revised Merced River Plan*. However, the proposed action does not call for any changes to the existing alignment of the Yosemite Valley Loop road. The management zones that would be either crossed by, or are directly adjacent to the Valley Loop Road include:

- Discovery (2B)
- Day Use (2C)
- Camping (3A)
- Visitor Base and Lodging (3B)
- Park Operations and Administration (3C)

The Diverse Visitor Experience Zone (Zone 2) allows for a higher level of visitor use and development while protecting the river's Outstandingly Remarkable Values. The Developed Zone (Zone 3) includes areas to be used to enable the park to support its year-round visitor and employee populations and serve the needs of visitors. This area is designed to accommodate the most concentrated visitor and administrative use.

The majority of the Yosemite Valley Loop Road is within the Discovery Zone (Zone 2B) which allows for small turnouts for trail access parking and/or viewing. The Day Use Zone (Zone 2C) and the Developed Zone (Zone 3) allow turnouts for parking areas and scenic lookouts. Therefore, the Yosemite Valley Loop Road is consistent with the management zones for the Merced River corridor in Yosemite Valley.

Yosemite Valley Loop Road Project Wild and Scenic Rivers Act Section 7 Determination

Table C-1 presents the Section 7 evaluation for the Yosemite Valley Loop Road Project.

Outstandingly Remarkable Values

Outstandingly Remarkable Values are the river-related values that make the river segment unique and worthy of special protection. They form the basis for the river's designation as a Wild and Scenic River. Outstandingly Remarkable Values for the Main Stem – Valley segment include:

- Scientific
- Scenic
- Geologic Processes/Conditions
- Recreation
- Biological
- Cultural
- Hydrologic Processes

Table C-1
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
DEFINE THE PROPOSED ACTIVITY	
Project proponent	National Park Service, Yosemite National Park
Purpose and need for the project	The purpose of this project is to repair and resurface existing roadway pavement, rehabilitate or replace adjacent drainages, and prescribe recommendations for management of roadside parking along approximately 12.5 miles of the Yosemite Valley Loop Road in Yosemite Valley. No roadway widening (outside of the original road prism width of 22 feet), realignment, or changes to vehicular or pedestrian circulation patterns as called for in the *Yosemite Valley Plan* (NPS 2000a), will be undertaken. Roadside parking areas may be redistributed, and existing roadside parking capacity may be reduced. The National Park Service will look for opportunities to accommodate this loss of parking in other future projects where possible.
Geographic location of the project	The project is located in Yosemite Valley, Yosemite National Park CA. The proposed project includes Southside Drive from the western terminus at Pohono Bridge to the Curry Village Intersection, and Northside Drive from the Curry Village intersection back to Pohono Bridge. The El Capitan Crossover and Sentinel Drive will also be included.
Project description	This project proposes to repair and resurface existing roadway pavement and drainage facilities to a like new condition and formalize roadside parking throughout the project area. No widening, or realignment of roadway off of the existing road bench will be undertaken. Pavement rehabilitation will involve in-place recycling of the existing deteriorated pavement, followed by an overlay of new asphalt paving. Culverts would be replaced with properly sized pipes and added in certain locations. As necessary, the drainage channels to, and downstream of existing culverts will be improved. Culvert relocation or rehabilitation, as well as the improvement of drainage channels to existing culverts, may require disturbance of some new areas. Existing stone masonry at culvert headwalls and outlets may be salvaged and reused. The project includes defining and/or formalizing roadside parking areas throughout the project area (with the exception of the Camp 6 area) with pavement, permanent barriers and/or curbing.
Duration of the proposed activities	Construction is expected to be implemented in two phases. Culvert rehabilitation, and tree removal/brush clearing will commence in fall 2006. Road recycling, pulverization and repaving will commence in 2007. The installation of the utility duct bank beneath Southside Drive from Pohono Bridge to the Wawona Road intersection would take place after the fall 2006 construction activities but prior to the repavement of the Yosemite Valley Loop Road in 2007.
Magnitude and/or extent of the proposed activities	The following provide a general description of the magnitude and/or extent of proposed activities associated with the Yosemite Valley Loop Road Project: ▪ Standardize the roadway width along the Yosemite Valley Loop Road. The width of the Yosemite Valley Loop Road currently ranges from 19'-26' wide. The current roadway would be pulverized and the roadway would be re-surfaced to a consistent base width of 22 feet where possible (10' width lanes and 1' shoulders), which is in accordance with the 1927 original base width. ▪ Placement of parking controls (e.g., roadside barriers and/or curbing) along the current footprint at select user-designated roadside parking locations to prevent continued expansion of user-designated roadside parking and to protect the new roadbed ▪ General replacement-in-kind of turnouts (e.g. turnouts that are paved would be repaved; turnouts that are graveled would be re-graded and graveled) with the exception of selective improvements to some roadside parking such as paving and/or curbing some turnouts that are currently graveled (e.g., Theodore Roosevelt Turnout), and reducing or expanding the size of some turnouts (e.g., Fern Spring Turnout) ▪ Removal of some turnouts within the River Protection Overlay ▪ Redistribution of some roadside parking within the project area ▪ Improvements to the natural hydrologic flow in the area adjacent to Pohono Bridge to minimize the potential for non-natural river bank erosion, match existing bank elevations, and to provide bank stabilization and restoration to the area ▪ Repair approximately 150 feet of embankment adjacent to the Valley View parking area to maintain the integrity of the turnout and adjacent pedestrian walkway ▪ Construction of curbing along the El Capitan Straight turnout on Northside Drive to protect El Capitan meadow. The existing No Parking stakes will be removed. ▪ Installation of a permeable subgrade in select areas to improve hydrologic connectivity from one side of the roadway to the other

Table C-1 (continued)
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
DEFINE THE PROPOSED ACTIVITY (CONTINUED)	
Magnitude and/or extent of the proposed activities (continued)	▪ Many culverts along the roadway would be replaced with properly sized pipes and in improved locations. Moreover, additional culverts will be placed along the roadway. Improvements to roadway drainage systems will improve hydrologic connectivity of surface and subsurface water from one side of the roadway to the other. ▪ Improvements to roadside drainage will be constructed along Southside Drive from Housekeeping Camp to the intersection of Northside and Southside Drives at Curry Village. This segment of the project area will be resurfaced and repaved under the East Valley Utilities Project; however, the Yosemite Valley Loop Road Project will improve hydrologic processes by rehabilitating, repairing and adding culverts and roadside drainages. ▪ Channel outlets of select culverts will be enhanced with the placement or repair of energy dissipaters. Large box culverts with damaged channel outlets will be restored to enhance hydrologic flow. ▪ Roadside shoulders would be reinforced at select locations of vehicle egress and ingress from the roadway. A reinforced shoulder will protect the new road bed from deteriorating from vehicle egress from the roadway over time. ▪ The Yosemite Valley Loop Road Project will repair surface damage on the El Capitan Bridge. ▪ The Yosemite Valley Loop Road Project will utilize in-place pulverization methods to recycle the existing road base and adaptively reuse it to repave the roadway. ▪ Five trees (with a diameter greater than 12") that are directly adjacent to the Yosemite Valley Loop Road will be removed because they compromise proper culvert function, are leaning over the roadway and have been hit by large vehicles such as RV's, trucks or buses, or are directly located within an area that needs to be graded for the inlet of a proposed additional box culvert. ▪ There will be selective brush clearing at some locations along the roadway (up to 8 feet off road prism) to improve visibility and visitor safety, preserve the integrity of the roadbed, accommodate culvert placement and rehabilitation, and reduce obstructions to snow removal operations. ▪ The Yosemite Valley Loop Road Project will provide needed improvements (i.e., crosswalks, handicap parking spaces, and curb-cutting) to facilities at, or in the vicinity of, many roadside turnouts in order to adequately accommodate people with disabilities. ▪ The installation of a utility duct bank beneath Southside Drive from Pohono Bridge to Wawona Road intersection will take place under the Yosemite Valley Road Project. ▪ Improvements will be made to foot and bike paths where adjacent roadway improvements are made (e.g., curbing or culvert outlet improvements). Improvements to pathways could include raised elevation, repavement, and/or pathway delineation.
Mitigation	Mitigation (e.g., best management practices and resource-specific measures) is incorporated into the proposed action. Refer to the Yosemite Valley Loop Road Project, Appendix A, for mitigation measures incorporated into the proposed action.
Relationship to past and future management activities	The proposed project is not tiered to the Yosemite Valley Plan (NPS 2000a), and does not implement specific actions called for in the Yosemite Valley Plan. However, the Yosemite Valley Loop Road Project area does fall within the Merced River corridor, as defined in the Revised Merced River Plan (NPS 2005b). As such, the proposed project will be subject to the requirements of the Revised Merced River Plan, to the extent applicable.
DESCRIBE WHETHER THE PROPOSED ACTIVITY WILL DIRECTLY ALTER WITHIN-CHANNEL CONDITIONS	
The position of the proposed activity relative to the streambed and streambanks	All elements of the Yosemite Valley Loop Road Project are out of the Merced River streambed and streambanks with the exception of the following: ▪ Improvements to the natural hydrologic flow in the area adjacent to Pohono Bridge to minimize the potential for non-natural river bank erosion, and to provide bank stabilization and restoration to the area ▪ Repair approximately 150 feet of embankment adjacent to the Valley View parking area to maintain the integrity of the turnout and adjacent pedestrian walkway
Navigation of the river	River navigation as defined by the U.S. Army Corps of Engineers is not applicable to this section of the river. Only 20 miles of the Merced River, from its confluence with the San Joaquin River, is designated as navigable by the U.S. Army Corps of Engineers.

Table C-1 (continued)
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
DESCRIBE WHETHER THE PROPOSED ACTIVITY WILL DIRECTLY ALTER WITHIN-CHANNEL CONDITIONS (CONT'D)	
ANY LIKELY RESULTING CHANGES IN:	
Active channel location	No.
Channel geometry (cross-sectional shape, width, depth characteristics)	No.
Channel slope (rate or nature of vertical drop)	No.
Channel form (straight, meandering, or braided)	No.
Relevant water quality parameters (turbidity, temperature, nutrient availability)	During construction, turbidity impacts to the river would likely be small and would be mitigated through application of best management practices. Improvements to the natural hydrologic flow in the area adjacent to Pohono Bridge to minimize the potential for non-natural river bank erosion, and to provide bank stabilization and restoration to the area will serve to minimize river turbidity by minimizing the potential for the continuation of induced river bank erosion.
DESCRIBE WHETHER THE PROPOSED ACTIVITY WILL DIRECTLY ALTER RIPARIAN AND/OR FLOODPLAIN CONDITIONS	
The position of the proposed activity relative to the riparian area and floodplain	The large majority of the project area is within the natural floodplain and associated riparian areas of the Merced River through Yosemite Valley. Proposed actions would help to enhance and protect these areas by: ▪ Improving roadside drainage ▪ Improving natural hydrologic processes due to the addition of new culverts and the resizing of others ▪ Improving the hydrologic connectivity, value and function of some adjacent floodplain and riparian areas by installing a permeable subgrade beneath the road at key locations ▪ The removal and/or reduction in size of some paved and unpaved roadside parking at select locations in the RPO ▪ Not expanding existing parking areas in the RPO
ANY LIKELY RESULTING CHANGES IN:	
Vegetation composition, age structure, quantity, or vigor	Approximately five trees (with a diameter greater than 12") that are directly adjacent to the Yosemite Valley Loop Road will be removed because they compromise proper culvert function, are leaning over the roadway and have been hit by large vehicles such as RV's, trucks or buses, or are directly located within an area that needs to be graded to improve existing culvert drainage or for the construction of new culverts at select locations. In addition, there will be selective brush clearing at some locations along the roadway (up to 8 feet off road prism) to improve visibility and visitor safety, preserve the integrity of the roadbed, accommodate culvert placement and rehabilitation, and reduce obstructions to snow removal operations.
Relevant soil properties such as compaction or percent bare ground	The proposed action would not affect soils outside of the existing road prism, or that are not already associated with some roadside parking areas. The exception to this would be some roadside drainages, which would be reshaped to enhance roadside hydrologic flow and improve culvert function. These soils are directly adjacent to the road prism and have been previously disturbed as a result of previous drainage maintenance in past years, therefore this activity would have a negligible impact to soils in these areas.

Table C-1 (continued)
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
DESCRIBE WHETHER THE PROPOSED ACTIVITY WILL DIRECTLY ALTER RIPARIAN AND/OR FLOODPLAIN CONDITIONS (CONTINUED)	
ANY LIKELY RESULTING CHANGES IN:	
Relevant floodplain properties such as width, roughness, bank stability, or susceptibility to erosion	The large majority of the project area is within the natural floodplain and associated riparian areas of the Merced River through Yosemite Valley. Proposed actions would help to enhance and protect these areas by: ▪ Improving roadside drainage ▪ Improving natural hydrologic processes due to the addition of new culverts and the resizing of others ▪ Improving the hydrologic connectivity, value, and function of some adjacent floodplain and riparian areas by installing a permeable subgrade beneath the road at key locations ▪ The removal and/or reduction in size of some paved and unpaved roadside parking at select locations in the RPO ▪ Not expanding existing parking areas in the RPO ▪ Improvements to the natural hydrologic flow will occur in the area adjacent to Pohono Bridge to minimize the potential for non-natural river bank erosion, to match existing bank elevations, and to provide bank stabilization and restoration to the area. ▪ Repairing approximately 150 feet of embankment adjacent to the Valley View parking area to maintain the integrity of the turnout and adjacent pedestrian walkway. This repair is expected to have no adverse effect on overall floodplain values.
DESCRIBE WHETHER THE PROPOSED ACTIVITY WILL DIRECTLY ALTER UPLAND CONDITIONS	
The position of the proposed activity relative to the uplands	The Yosemite Valley Loop Road will not directly alter upland areas outside of the existing road prism or some isolated areas directly adjacent roadside drainages that will be cleared of brushy debris to enhance natural drainage function.
Relevant hydrologic properties such as drainage patterns or the character of surface and subsurface flows	Proposed actions would help to enhance and protect these properties by: ▪ Improving roadside drainage. ▪ Improving natural hydrologic processes due to the addition of new culverts and the resizing of others. ▪ Improving the hydrologic connectivity, value and function of some adjacent floodplain and riparian areas by installing a permeable subgrade beneath the road in the vicinity of Sentinel Creek drainage and El Capitan Straight.
Potential changes in upland conditions that would influence archeological, cultural, or other identified significant resource values	Construction activities would be performed in accordance with stipulations in the parkwide 1999 Programmatic Agreement and the 1986 Memorandum of Agreement. The proposed action would not influence archeological, cultural, or other identified significant resource values in uplands of the Merced River.
ANY LIKELY RESULTING CHANGES IN:	
Vegetation composition, age structure, quantity, or vigor	There will be selective brush clearing at some locations along the roadway (up to 8 feet off road prism) along with the removal of 5 trees greater than 12 inches in diameter to improve visibility and visitor safety, preserve the integrity of the roadbed, accommodate culvert placement and rehabilitation, and/or reduce obstructions to snow removal operations.
Relevant soil properties such as compaction or percent bare ground	The proposed action would not adversely affect soil compaction, or increase bare ground in areas outside of the existing road prism that are not already associated with some roadside parking areas. The exception to this would be some roadside drainages, which would be reshaped to enhance roadside drainage and improve culvert function. This activity is not expected to adversely compact soils and these areas are expected to undergo revegetation in accordance with the project's revegetation plan (see Appendix B).

Table C-1 (continued)
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
EVALUATE AND DESCRIBE WHETHER CHANGES IN ON-SITE CONDITIONS CAN OR WILL ALTER EXISTING HYDROLOGIC OR BIOLOGIC PROCESSES	
The ability of the channel to change course, re-occupy former segments, or inundate its floodplain	The project would not have any affect on the ability of the channel to change course, re-occupy former segments, or inundate its floodplain.
Streambank erosion potential, sediment routing and deposition, or debris loading	The project proposes to restore and rehabilitate an area of non-natural river bank erosion near the Pohono Bridge caused by adjacent poor roadside drainage. This will help to minimize or prevent non-natural river bank erosion in this area. In addition, approximately 150 feet of embankment would be rehabilitated adjacent to the Valley View parking area (a Class A scenic vista) along Southside Drive. The project would not affect natural sediment routing and deposition or debris loading.
The amount or timing of flow in the channel	The proposed project would not affect the amount or timing of flow in the Merced River.
Existing flow patterns	The proposed project would not affect existing flow patterns in the Merced River.
Surface and subsurface flow characteristics	The proposed project will improve surface flow by repairing and resizing existing culverts, installing new ones, improving roadside drainages and installing a permeable subgrade in the vicinity of Sentinel Creek drainage and El Capitan Straight, which will improve near-surface flow and overall hydrologic connectivity in these areas.
Flood storage (detention storage)	The proposed action is not expected to have a measurable effect on river flood storage capability.
Aggregation and or degradation of the channel	The proposed action is not expected to have a measurable effect on aggregation and/or degradation of the river's natural channel properties.
Amphibian/mollusk needs	The proposed project is not expected to have any measurable effect on amphibian/mollusk needs.
Species composition (diversity)	The proposed project is not expected to have any measurable effect on species composition or diversity.
BIOLOGICAL PROCESSES SUCH AS:	
Reproduction, vigor, growth, and/or succession of streamside vegetation	There will be selective brush clearing at some locations along the roadway (up to 8 feet off road prism) to improve visibility and visitor safety, preserve the integrity of the roadbed, accommodate culvert placement and rehabilitation, and reduce obstructions to snow removal operations. Nothing is proposed that would reduce streamside vegetation.
Nutrient cycling	The proposed project is not expected to have a measurable effect on natural nutrient cycling processes.
Fish spawning and/or rearing success	The proposed project is not expected to have any effect on fish spawning and/or rearing success.
Riparian-dependent avian species needs	The proposed project is not expected to have any measurable effect on riparian-dependent avian species needs.

Table C-1 (continued)
Section 7 Evaluation for the Yosemite Valley Loop Road Project

Evaluation Criteria	Project Data
ESTIMATE THE MAGNITUDE AND SPATIAL EXTENT OF POTENTIAL OFF-SITE CHANGES	
CONSIDER AND DOCUMENT:	
Changes that influence other parts of the river system	There is nothing proposed as part of this project that is expected to change or influence other parts of the river system.
The range of circumstances under which off-site changes might occur (for example, as may be related to flow frequency)	Implementation of the Yosemite Valley Loop Road Project is not expected to create circumstances under which off-site changes would result in impairment of natural river flow frequencies or volumes.
The likelihood that predicted changes will be realized	Based on the above, there are no predicted off-site changes as a result of implementation of this project.
Specify processes involved, such as water and sediment, and the movement of nutrients	Natural hydrologic processes would be enhanced due to improvements made to culverts and roadside drainages, and hydrologic connectivity would be enhanced in the vicinity of Sentinel Creek drainage and El Capitan Straight as a result of the installation of a permeable subgrade in these areas.
DEFINE THE TIME SCALE OVER WHICH STEPS 3-6 ARE LIKELY TO OCCUR	
Review steps 3-6, looking independently at the element of time. Define and document the time scale over which the effects will occur.	Construction is expected to be implemented in two phases: ▪ Culvert repair and replacement, and tree removal/brush clearing will commence in fall 2006. ▪ Road recycling, pulverization and repaving and parking controls will commence in 2007. ▪ The installation of the utility duct bank beneath Southside drive from Pohono Bridge to the Wawona Road intersection would take place after the fall 2006 construction activities but prior to the repavement of the Yosemite Valley Loop Road in 2007.

Effects of the Proposed Action on Outstandingly Remarkable Values

The proposed action would help restore natural hydrologic processes where natural drainages cross the Yosemite Valley Loop Road. In addition, near-surface flow would be enhanced along the roadway at Sentinel Creek drainage and El Capitan Straight as a result of the installation of a permeable subgrade in these areas. Improved hydrologic flow is expected to improve the overall health of adjacent meadow and wetland areas, enhancing both the scenic and biological Outstandingly Remarkable Values. The rehabilitation of culverts and headwalls that have stonework that is considered to be a contributing element to the Yosemite Valley Historic District would enhance the Cultural ORV. The project also proposes improvements to select roadside turnouts that provide access to the river and to adjacent trails, which would enhance the Recreation ORV. An assessment of the proposed action's effects on Outstandingly Remarkable Values is provided in Table C-2.

Section 7 Determination

The proposed action would repair and resurface existing roadway pavement and drainage facilities to a like new condition and formalize roadside parking throughout the project area. No widening, or realignment of roadway off of the existing road bench will be undertaken. Pavement rehabilitation will involve in-place recycling of the existing deteriorated pavement, followed by an overlay of new asphalt paving. Culverts would be replaced with properly sized pipes and added in certain locations. As necessary, the drainage channels to, and downstream of existing culverts will be improved. Culvert rehabilitation or installation, as well as the improvement of drainage channels to existing culverts, may require disturbance of some new areas. Existing stone masonry at culvert headwalls and outlets may be salvaged and reused. The project includes defining and/or formalizing roadside parking areas throughout the project area (with the exception of the Camp 6 area) with pavement, permanent barriers and curbing.

As previously discussed, improved hydrologic flow is expected to improve the overall health of adjacent meadow and wetland areas, enhancing both the scenic and biological Outstandingly Remarkable Values. The rehabilitation of culverts and headwalls that have stonework that is considered to be a contributing element to the Yosemite Valley Historic District would enhance the Cultural ORV. The project also proposes improvements to select roadside turnouts that have access to the river to trails, which would enhance the Recreation ORV. As a result of the direct and indirect beneficial effects to these ORVs the National Park Service concludes that the proposed action would enhance free-flow of the Merced River and would not have any direct and adverse effects on the Outstandingly Remarkable Values for which the river was designated Wild and Scenic.

Table C-2
Effects of the Proposed Action on Outstandingly Remarkable Values in the Valley Segment of the Merced Wild and Scenic River Corridor

Outstandingly Remarkable Value	Effects of the Proposed Action
Scientific – The entire river corridor constitutes a highly significant scientific resource because the river watershed is largely within designated Wilderness in Yosemite National Park. Scientific Outstandingly Remarkable Values relate to the Merced River's value for research. This Outstandingly Remarkable Value applies to all the Merced River segments.	The proposed action would have no effect on scientific resources of the river.
Scenic – The Valley segment provides magnificent views from the river and its banks of waterfalls (Nevada, Vernal, Illilouette, Yosemite, Sentinel, Ribbon, Bridalveil, and Silver Strand), rock cliffs (Half Dome, North Dome/Washington Column, Glacier Point, Yosemite Point/Lost Arrow Spire, Sentinel Rock, Three Brothers, Cathedral Rock, and El Capitan), and meadows (Stoneman, Ahwahnee, Cook's, Sentinel, Leidig, El Capitan, and Bridalveil). There is a scenic interface of river, rock, meadow, and forest throughout the segment.	The proposed action would improve the natural hydrologic flow through improvements to culverts and roadside drainages, and improve the hydrologic connectivity in the vicinity of Sentinel Creek drainage and El Capitan Straight by installation of a permeable subgrade in these areas. These improvements will help to enhance overall meadow health in these areas and improve the scenic qualities of these meadows. In addition, improvements to the embankment adjacent to the Valley View turnout (a Class A scenic vista) will help improve the scenic qualities this area. Although there may be short-term scenic impacts during construction, the proposed action would enhance the scenic Outstandingly Remarkable Value on a segment-wide basis.
Geologic Processes/Conditions – The Valley segment contains a classic, glaciated, U-shaped valley, providing important examples of a mature meandering river; hanging valleys such as Yosemite and Bridalveil Creeks; and evidence of glaciation (e.g., moraines below El Capitan and Bridalveil Meadows.	The proposed action would have no effect on the geologic process Outstandingly Remarkable Value.
Recreation – The Valley segment offers opportunities to experience a spectrum of river-related recreational activities, from nature study and sightseeing to hiking. Yosemite Valley is one of the premier outdoor recreation areas in the world.	The project proposes improvements to select roadside turnouts that provide access to the river and to nearby trails, which would enhance river-related recreational opportunities and have a beneficial effect on the recreation Outstandingly Remarkable Value for the Valley segment.
Biological – Riparian areas and low-elevation meadows are the most productive communities in Yosemite Valley. The high quality and large extent of riparian, wetland, and other riverine areas provide rich habitat for a diversity of river-related species, including special-status species, neotropical migrant songbirds, and numerous bat species.	Improved hydrologic flow as a result of implementing the proposed action is expected to improve the overall health of adjacent meadow and wetland areas This would have a beneficial effect on the biological Outstandingly Remarkable Value for the Valley segment of the river.
Cultural – The Valley segment contains evidence of thousands of years of human occupation reflected in a large number of archeological sites and continuing traditional use today. Nationally significant historic resources are found here, such as designed landscapes and developed areas, historic buildings, and circulation systems (trails, roads, and bridges) that provide visitor access to the sublime views of natural features that are culturally valuable.	The rehabilitation of culverts and headwalls that have stonework that is considered to be a contributing element to the Yosemite Valley Historic District would enhance the Cultural ORV. Potential impacts to cultural resources associated with construction activities will be mitigated through data recovery excavations and/or construction monitoring as specified in the 1999 Programmatic Agreement.

Table C-2 (continued)
Effects of the Proposed Action on Outstandingly Remarkable Values in the Valley Segment of the Merced Wild and Scenic River Corridor

Outstandingly Remarkable Value	Effects of the Proposed Action
Hydrologic Processes – The Valley segment is characterized by a meandering river, world-renowned waterfalls, an active flood regime, oxbows, unique wetlands, and fluvial processes.	Proposed actions would help to enhance and protect these properties by: ▪ Improving roadside drainage ▪ Improving natural hydrologic processes due to the addition of new culverts and the resizing of others ▪ Improving the hydrologic connectivity, value and function of some adjacent floodplain and riparian areas by installing a permeable subgrade beneath the road in the vicinity of Sentinel Creek drainage and El Capitan Straight The overall effect of this would be enhancements to adjacent meadow and wetland areas to help restore the natural fluvial and floodplain processes, which would enhance the hydrological Outstandingly Remarkable Value for the Valley segment.